

Fig. 1 - Schematic of dynamic resonant shear stress sensor with the governing equation and a time history of the fluctuating shear force on the sensor (from a simulation). A cutaway view of the sensor is shown to display components below the surface.

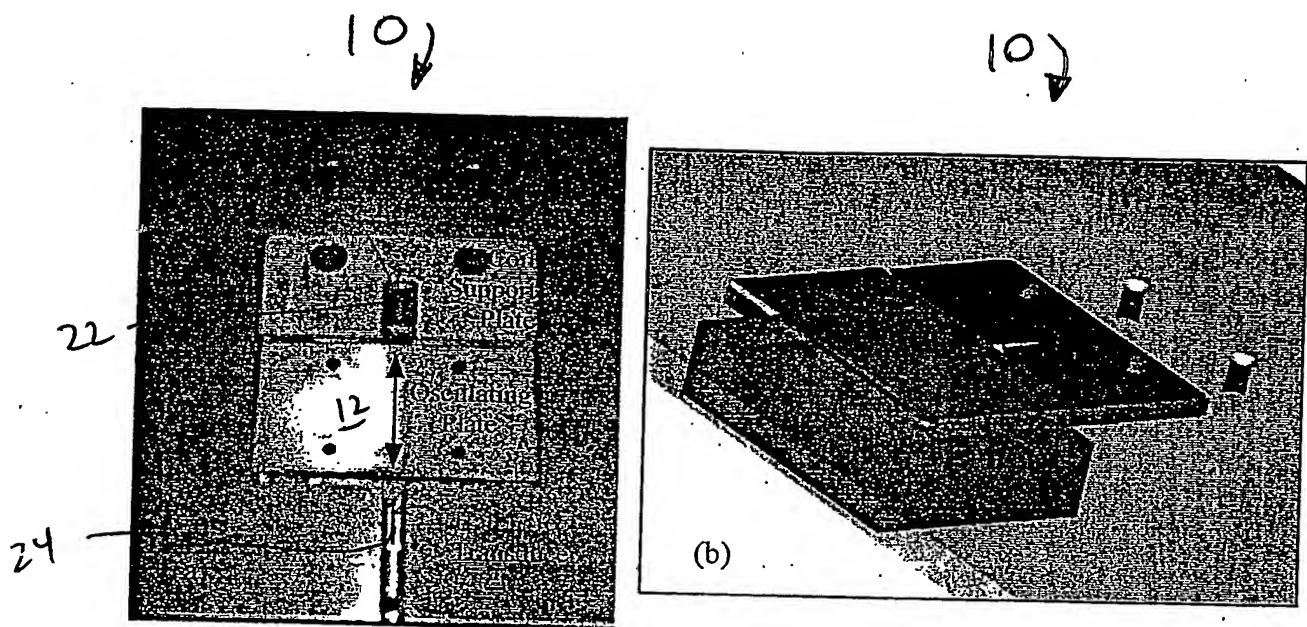


Fig. 2 - Large-scale prototype surface shear stress sensor: (a) image of the sensor, and (b) three-dimensional schematic.



Fig. 3 - Experimental data showing the performance of an open loop, periodic, resonant wall shear stress sensor. The dependence of the sensor oscillation amplitude and phase angle on wall shear stress is shown.

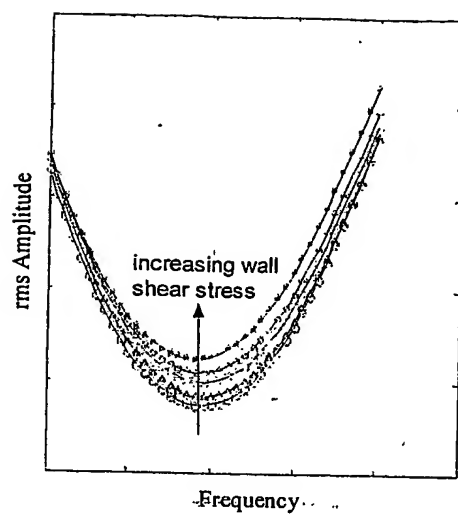


Fig. 4 - Experimental data showing the performance of an closed loop, periodic, resonant wall shear stress sensor. The dependence of the driving mechanism amplitude on frequency is shown.